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ADVANCES IN ENGINEERING ETHICS

BY DR. C. E. DRAYER,

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 THE necessity for a code of ethics to crystallize opinion in the profession and more especially for the guidance of young engineers, has quite generally been recognized for some time. The younger engineers are naturally students of precedent and anxious to uphold and be worthy of the noble profession to which they aspire.

If we should select a man of ideal character and set down in words his actions in contact with others, and formulate the principles governing his conduct, we should have a code of ethics. Ethics is nothing else than the principles of right conduct established by the custom of the well-intentioned. The twentieth century accepts, among other principles, the following as applicable to all humanity:

"The honesty which is unswerving.
The truthfulness which abhors a lie.
The helpfulness which lightens the burdens of life.
The human sympathy which gladdens aching hearts.
The honor which scorns to take a mean advantage.
The courage which always dares to do right, and
The courtesy of kindness."

Ethics, as distinguished from civil law, means guidance of conduct from springs within. In the fullest sense of the word, a gentleman comprehends ethics and his training begins in these things not when he has reached college but at the hearthstone and at his mother's knee. In college, those things that appeal to his growing intellectual powers and better self are laid before him for selection of the best. Worthiness of character is in the fibre. It can not be injected by mechanical means.

Yet here and there are examples of deliberate unprofessional conduct, illustrated by the engineer, now living and practicing, who acted as engineer on the one hand and as contractor on the other, for the same job in a small community where ignorance of the town trustees was such as to allow them to be told one kilowatt might be better or larger than another. This so-called engineer specified a non-standard dynamo and as contractor bought a secondhand standard dynamo and put on it a metal plate showing that it conformed with the specifications.

Disciplinary action in such cases, when promptly and courageously undertaken, does much to establish the profession in the high regard it must win from the public if it is to be a profession and not a trade. There is no organization in society but will suffer destruction from within unless it protects itself from the irresponsible few whose assumptions of duty never rise higher than the plane of selfishness.

For a group like doctors, lawyers, or engineers, a code of ethics is a statement of principles of

right conduct for that group and must be revised from time to time to keep pace with the living people. One illustration suffices. If a group of engineers fifty years ago had drafted a code of ethics, it would doubtless have been confined to the relations between engineers as members of a fraternity dealing with technical information and the advancement of the science of material things. But any code of ethics of a professional body written or revised today would place the rights of the public as paramount, while a code of engineering ethics written or revised in 1930 probably would emphasize human well-being and the predictable social consequences of any undertaking of this industrial age.

Today even commerce takes on professional aspects and has a code of ethics. The International Association of Rotary Clubs has been working on a campaign for the writing of codes of standards of correct procedure for each business or profession. A code of ethics does not connote "profession," but every profession must give special attention to standards of conduct for guidance of members and in order that the public may know what to expect from them. Accountants, architects, doctors, teachers, lawyers, librarians, journalists, druggists, engineers have code of ethics, but in the technical sense ministers have none because of the rigid general standards to which they are dedicated. The physician has had ethical codes since the days of Hippocrates.

Engineers, being members of a new profession, have reduced ethics to a code but recently. The first society of engineering was the Institution of Civil Engineers in England, established in 1818. The Boston Society of Engineers was organized in 1848 and the American Society of Civil Engineers in 1852, but engineering organization was not very effective until in the early eighties.

For about the last fifteen years engineering societies have been studying the formulation of codes with, at first, more indifference than effect until now the national technical societies have, through a joint committee, drafted a code of ethics as follows:

1. The Engineer will carry on his professional work in a spirit of fairness to employes and contractors, fidelity to clients and employers, loyalty to his country and devotion to high ideals of courtesy and personal honor.
2. He will refrain from associating himself with or allowing the use of his name by an enterprise of questionable character.
3. He will advertise only in a dignified manner, being careful to avoid misleading statements.
4. He will regard as confidential any information obtained by him as to the business affairs and technical methods or processes of a client or employer.

5. He will inform a client or employer of any business connections, interests or affiliations which might influence his judgment or impair the disinterested quality of his services.
6. He will refrain from using any improper or questionable methods of soliciting professional work and will decline to pay or to accept commissions for securing such work.
7. He will accept compensation, financial or otherwise for a particular service from one source only, except with the full knowledge and consent of all interested parties.
8. He will not use unfair means to win professional advancement or to injure the chances of another engineer to secure and hold employment.
9. He will co-operate in upbuilding the Engineering Profession by exchanging general information and experience with his fellow engineers and students of engineering and also by contributing to the work of engineering societies, schools of applied sciences and the technical press.
10. He will interest himself in the public welfare in behalf of which he will be ready to apply his special knowledge, skill and training for the use and benefit of mankind.

However, it has remained for the American Association of Engineers, the American Institute of Consulting Engineers and the American Institute of Architects to give more attention than any others to the administration of ethics, making procedure a virile, helpful thing to the profession. The remainder of this article will be devoted to the development and procedure in the American Association of Engineers.

CASE METHOD OF ENGINEERS' APPLIED ETHICS

In building a code of ethics and establishing principles of good professional conduct, the American Association of Engineers started with a simple code written by a man of as high character as could be found in the profession. Out of his three score years and ten of honorable conduct, he set down a declaration. So came "The Engineers' Applied Ethics" from the hands of the late Dr. Isham Randolph. This was intended and has served as an expression of the ideals of the profession rather than as detailed rules of conduct.

But to make the code an actual, living thing that would help develop the service of the engineer to maximum usefulness, both by harmonious co-operation between engineers and by declaration of faith for the review and confidence of a disinterested public, the code must be filled out and applied to everyday life. As specific cases arose needing consideration, they were referred to a Practice Committee for the statement and application of underlying principles, and were ultimately published without names of persons or places involved. They became the basis of discussion and were thus woven into the daily thought and ideas of the profession. The body of decisions was threaded through with the prin-

ciples that were lately woven together by the Practice Committee into forty-five "Specific Principles for Good Professional Conduct."

After the Practice Committee (established in 1919) had been in operation for awhile, it was observed that cases divided themselves rather naturally into (a) those in which the facts were unquestioned, in which it was necessary to determine whether the acts were in accord with the code, and (b) those in which facts and personalities were quite controversial, which required much care in procedure.

In all, forty-four separate cases have been decided and the forty-fifth is now before the Practice Committee.

A question or series of questions may be brought before the Board of Directors by any person or group and, if found pertinent, will be referred to the Practice Committee for formulation, study and findings. After the case has been reduced by the committee to statements of fact and the questions involved, it is published in "Professional Engineer," the Association's official publication, with the invitation to anyone interested to submit comment or information. The Practice Committee then makes its findings and submits the whole to the Board of Directors for approval. When approved, it becomes a part of the law of the Association.

Case 45, recently published for comment, is of very great importance to both the profession and the public might well be the basis for a talk to students on ethics and written discussions by them.

"Several instances have recently been reported of cities inviting engineers, by letter or advertisement.

- (a) To submit competitive bids or sealed proposals for furnishing specified engineering services.
- (b) To furnish, with their bids, bonds for the satisfactory performance of their services.
- (c) To furnish, with their bids, a guarantee that the cost of construction will not exceed their estimates.

- Q. 1. Are any principles of good professional conduct violated by engineers tendering their services under the terms outlined?
- Q. 2. Formulate principles to cover the proper conduct of engineers with regard to such conditions."

Case 15 is so complete as to be self-explanatory.

"A firm of engineers by name of A, located at B in state C, advertise and sell their services as consulting engineers. They are also manufacturers' representatives for several of the largest manufacturers in the United States. Among others, they act as consulting engineers for the city of B on work which they recommend and on which they write specifications. They also give prices to contractors and bid on the machinery.

Question: Is it ethical for A to sell their services as consulting engineers to the city of B and also, acting in the capacity of sales engineers or manufacturers' representatives, to furnish prices on the commodities

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that they sell to contractors bidding on the work of city B when A makes a recommendation of award?

Answer: Generally, no. There might be a peculiar combination of circumstances where this might be correct, but never should it be undertaken without the fullest publicity, and then only in cases where the public interest demands it.

Question: In the above case, would the situation be altered if A made a direct bid to city B for the required commodities or machinery?

Answer: Generally, no. Exception under conditions mentioned above.

Question: As a general policy is it ethical for engineers to design work or write specifications for clients and also have an interest, direct or indirect, in the materials, equipment, or other things going into the construction work of the clients?

Answer: As a general policy it is not ethical for engineers to have an interest, direct or indirect, in the materials, equipment, etc., going into the construction work of their clients except when the clients be advised in advance of the nature of the interest of the engineer, and sanction of the client be obtained.

To provide for appeal from the Practice Committee and for extraordinary cases, a Judiciary Committee has been provided in the By-Laws of the Association. This committee has disciplinary powers over members of the association, including expulsion, and there is no higher authority. It is a supreme court to which cases may be referred by the Board of Directors, the Practice Committee, or by twenty members. That the Judiciary Committee stands ready to function and has not been called upon for the two years since its creation is excellent evidence of the thorough-going operation of the other machinery. Its very existence serves notice that the association is provided with clean-cut methods to bring into line willful violators of the code or of the specific principles of good professional conduct.

SPECIFIC PRINCIPLES OF GOOD PROFESSIONAL CONDUCT.*

After four years of work and forty-four cases had been passed upon, the Practice Committee was asked to make a compilation of short-sentence, easily understood principles of professional conduct. This was done under four major heads, as follows:

Part I. Relations of the Engineer to the Public.

Part II. Relations of the Engineer to Clients and Employers.

Part III. Relations of the Engineer to Employees.

Part IV. Relations of the Engineer to other Engineers.

Part I contains two "don't's" to one "do," but the "don't's" really clear the ground for the two "do's." One of the "do's" is an exhortation for the engineer to take an active interest in public welfare and to participate in clean politics as a duty of citizenship. Public welfare is paramount to all other obligations. With this concept, engineering becomes more of a social service than a means for material prosperity. Part II may be summed up in two words, loyalty and fidelity.

As the future engineer in his undergraduate days looks forward to practice and to his relations first as an employee of other engineers, he would be especially interested in Parts III and IV.

PART III. RELATIONS OF ENGINEERS TO EMPLOYEES

1. The Engineer should treat his employees or subordinates in a spirit of fairness, with due regard and consideration for their personal welfare and professional advancement.
2. There should be a professional bond between employer and employee when both are engineers, which will dictate and impel reciprocal interest and mutual consideration.
3. The Engineer should pay adequate salaries commensurate with the importance and responsibility involved in the service.
4. He should encourage the professional pride of his employees or subordinates in their work and should offer them every means of protecting their reputations and the quality of the work entrusted to them by not interfering with the proper performance of the duties for which they are responsible.
5. He should recognize the freedom of his employees to change employment and should in no way hinder employees or subordinates on bettering their condition.
6. He should not discharge an employee, nor withhold employment from him, nor discriminate against him in any way on account of his affiliations or activities in any professional, political or religious organization.
7. He should respect his employee's right to freedom of thought, speech and outside activity as long as the same does not impair the efficiency and value of the employee's service.
8. He should see that his employee is adequately covered by insurance against risk of casualty arising from his work.
9. In advertising or offering employment, he should refrain from any misrepresentation as to the conditions and the permanency of such employment.
10. If in public employ, he should assume the responsibility of consistently protecting the interests of his subordinates.
11. He should make every effort to provide steady employment for his employees and when forced to discharge an em-

*Copy sent on request to American Association of Engineers, 63 E. Adams St., Chicago, Ill.

"A-B-C ~ stuff"

In college a fellow is handed a mass of facts—some of them simple and fundamental, others complex, intricate and hard to remember. *Get your fundamentals fixed* and it won't often be serious later if you have to seek a reference book for the complexities.

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PART IV. THE ENGINEER'S RELATIONS TO OTHER ENGINEERS

1. The Engineer should not by word, act or omission, injure falsely or maliciously, directly or indirectly, the professional reputation, prospects or business of another Engineer.
2. He should not attempt to supplant another Engineer after definite steps have been taken toward his employment.
3. If employed in conjunction with another Engineer, and by the same client, he should not review and comment conclusively upon the work of the other Engineer, except with his full knowledge and consent or unless the connection of such other Engineer to the work has been previously terminated.
4. He should not use unfair means to effect his professional advancement or to injure the chances of another Engineer to secure and hold employment.
5. He should not attempt to inject his services into a project at the expense of another Engineer who has been active in developing it.
6. He should not interpose between other Engineers and their clients when unsolicited. When solicited, he should avoid any possibility of doing a brother En-

gineer an injustice.

7. He should not seek or solicit a position occupied by another Engineer.
8. He should not attempt to secure work on the basis of lower salaries or fees.
9. He should be courteous, fair, considerate in his dealings with other Engineers.
10. He should not criticize the work of other Engineers, except when regularly engaged to do so; and he should not attempt to secure the work for himself through criticism. (This statement of principle referred by the convention back to the Practice Committee for further study.)
11. He should not commercialize his affiliations with, or official position in, any technical organization.
12. He should not use his professional affiliations to secure the confidence of other Engineers in speculative commercial enterprises.
13. As a member of any professional organization, he should avoid any act tending to promote his own interest at the expense of the dignity and standing of the organization.
14. As an officer of a professional organization, he should sedulously avoid any appearance of using his position for personal advertising.
15. He should co-operate in upbuilding the engineering profession by exchanging professional information and experience with his fellow engineers and students of engineering and by contributing to the work of engineering societies, schools of applied science, and the technical press.
16. He should regard himself as a debtor to his profession and should dedicate himself to its advancement.

We shall close, not with a summary and conclusion, but with a word of caution and of emphasis. No fundamental concept of any profession, and hence of the engineering profession, can be divorced from general welfare. The danger of group bias and self-satisfaction among doctors, lawyers or engineers is great and the code may be made a cloak—and here is the emphasis—unless the good of the whole, of which the profession is a small part, is kept paramount.

“Just charge it,” said the sweet young thing, when she left her storage battery at the garage.

When angry, think twice before speaking. If for no other reason, it will give you time to dope out a more withering line of talk.

A story is told of two traveling salesmen who were the sole survivors of a shipwreck on an uninhabited island. One morning one of the men came running to his companion, yelling, “Ike! Ike! I believe I see a sail!” But Ike’s gloom was not lifted by this cheering news. “What difference does it make?” he asked. “We ain’t got no samples,”

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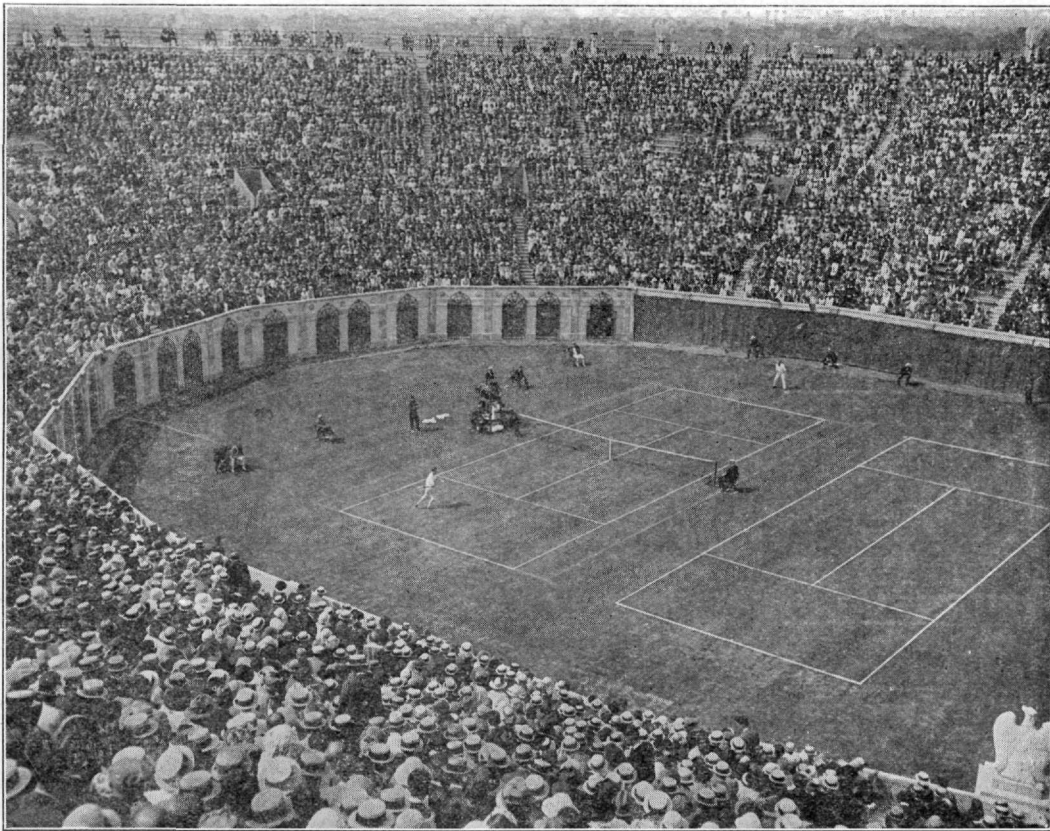
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